WHAT IS CLAIMED IS:

1. A gas flow simulation method comprising the steps of:

forming an object having at least one concavity on a surface thereof by means of a computer and extracting a part of said surface of said object including said concavity;

forming a spatial part from a space located on the periphery of said object by dividing a portion of said spatial part in contact with said extracted surface of said object into blocks;

forming a large number of lattice-shaped portions by dividing said spatial part into lattices;

flowing a gas into said spatial part in one direction along said surface of said object and discharging said gas in a different direction through an inside of said spatial part;

computing a motion element of a flow of said gas for each lattice-shaped portion of said spatial part; and

simulating a flow of said gas on the periphery of said concavity.

2. The gas flow simulation method according to claim 1, wherein said motion element of said gas flow is a velocity of said gas flow, a direction of said gas flow, and a pressure of said gas flow applied to said surface of said object in each axial direction of a three-dimensional space coordinate system, and

said motion element is computed at each slight time dt by using the equation of continuity and the Navier-Stokes equation.

3. The gas flow simulation method according to claim 1, wherein based on a result of said computation, a gas flow on the periphery of said concavity is simulated by visualizing a flow direction of said gas flow and a flow velocity thereof by a vector direction and a vector length respectively.

4. The gas flow simulation method according to claim 1, wherein based on a result of said computation, a gas flow on the periphery of said concavity is simulated by visualizing a pressure distribution of said gas flow by an isobaric line or a surface connecting equal pressures to each other.

5. The gas flow simulation method according to claim 1, wherein based on a result of said computation, a gas flow on the periphery of said concavity is simulated by visualizing a vorticity distribution of said gas flow by an isopleth of equal vorticities or a surface connecting equal vorticities to each other.

6. The gas flow simulation method according to claim 1, wherein based on a result of said computation, a gas flow on the periphery of said concavity is simulated by visualizing a stream line, a trajectory, and a particle trace

of said gas flow.

7. The gas flow simulation method according to claim 1, wherein a height of said spatial part with respect to said surface of said object is set to more than 10 times as large as a depth of said concavity nor more than 10000 times as large as said depth thereof.

8. The gas flow simulation method according to claim 1, wherein a height of each of said lattice-shaped portions of said spatial part located in a range less than $1/Re^{0.5}$ (Re is Reynolds number, Re = representative velocity × representative length/kinematic viscosity of gas) with respect to said surface of said object is set to not less than $1/(1000 \cdot Re^{0.5})$ nor more than $1/Re^{0.5}$, and said height of each of said lattice-shaped portions located in a range not less than $1/Re^{0.5}$ with respect to said surface of said object is set to not less than $1/Re^{0.5}$.

9. The gas flow simulation method according to claim 1, wherein said surface of said object is curved, and a flow direction of said gas which flows into said spatial part and discharged therefrom is corrected in conformity to a curvature of said surface of said object.

10. The gas flow simulation method according to claim 1, wherein said object is a golf ball, said concavity is a dimple, and a flow of a gas on the periphery of said dimple of said golf ball is simulated.